

**WHAT IS CLAIMED IS:**

1           1.       A method of encoding a data packet for encapsulation in one or more frames  
2       for communication from a transmitter to a receiver in a network interface, comprising:  
3           dividing the data packet into one or more data chunks;  
4           determining the length of a data chunk as the lesser of the number of bytes available  
5       in a current frame, the number of bytes remaining in the data packet, or a predetermined  
6       number of bytes;  
7           determining if the data chunk is the end-of-the-packet (EOP); and  
8           when the data chunk is not the EOP, prepending the data chunk with a control  
9       character representing the length of the data chunk and non-EOP prior to insertion of the data  
10      chunk into a current frame.

1           2.       The method of claim 1, further comprising:  
2           when the data chunk is the EOP, determining if there is an error in communication of  
3       the plurality of data chunks; and  
4           when there is not an error in communication of the plurality of data chunks,  
5       prepending the data chunk with a control character representing the length of the data chunk  
6       and EOP.

1           3.       The method of claim 2, further comprising:  
2           when there is an error in communication of the plurality of data chunks, prepending  
3       the data chunk with a control character representing the length of the data chunk, EOP, and  
4       error in communication (ERR).

1           4.       The method of claim 1, further comprising:  
2           determining the number of bytes remaining in the current frame; and  
3           when the number of bytes remaining in the current frame is equal to one, inserting a  
4       pad character to the current frame.

1           5.       The method of claim 4, further comprising:

when the number of bytes remaining in the current frame is not equal to one, inserting a data chunk into the current frame.

6. The method of claim 1, further comprising:  
determining if there is a gap in the data packet; and  
when there is a gap in the data packet, inserting one or more characters represent pad in the current frame.

7. The method of claim 1, further comprising:  
determining if there is a mode change in the communication of the one or more frames; and  
when there is a mode change,  
determining if the number of bytes remaining in the current frame is less than a second predetermined number, and  
when the number of bytes remaining in the current frame is not less than the second predetermined number, inserting a control character representing the mode change in the current frame.

8. The method of claim 7, further comprising checking upon a mode change if the frame should be truncated, and if so, truncating the frame so the mode change information is immediately transmitted to the receiver.

9. The method of claim 8, further comprising truncating the frame while maintaining alignment in the network interface.

10. The method of claim 1, further comprising:  
prepending the frame with a control byte representing the beginning-of-frame (BOF).

11. The method of claim 10, wherein the control byte representing BOF indicates mode of transmission and depth information for a complementary receiver on a same side of the network interface.

12. The method of claim 10 further comprising:

prefixing another control byte representing the BOF that is identical to the other control byte representing BOF.